



Speaking notes for Dr. Robert Annan
President and CEO, Genome Canada

Appearance before the Standing Committee on Finance (FINA)

Thursday, June 4, 2020

3:00 – 5:00 pm ET

Virtual (Zoom/teleconference)

Introduction

- I am pleased to be here today on behalf of Genome Canada.
- I'm joined by Pari Johnston, Vice President Policy and Public Affairs.
- Today, I'm going to talk to you about genomics, which is the branch of science that looks at the molecular underpinnings of living things – the branch of science responsible for today's most cutting-edge biotechnologies – from DNA sequencing to synthetic biology to gene editing. And I'm going to talk about how this science is helping us address the COVID pandemic.
- But first, a couple words about who we are.
- Genome Canada is an independent not for profit that invests in large-scale Canadian science and technology to fuel innovation and translate discoveries into valuable services and products across all sectors of the Canadian economy.

- We work to translate cutting-edge science into real-world applications that are transforming health care, the environment, agriculture, forestry, fisheries, energy and mining.
- We work closely with provincial and regional partners through a federated, collaborative model with six regional Genome Centres.
- This allows us to align regional strengths and opportunities into a coordinated national effort: national breadth matched with regional depth.
- We partner with universities, small and medium size companies, industry associations, hospitals, and public health labs.
- This year is our twentieth anniversary. Those twenty years have seen the birth and early growth of genomics.
- And Genome Canada, through the support of the federal government, has driven the development of a world-class network of Canadian researchers, infrastructure, and technology.
- And today, those investments are proving essential as we mobilize our genomics community on the COVID pandemic – a rapid response that was **20 years in the making**.

Canadian COVID Genomics Network

- A few words about how genomics helps in the current moment.
- Viruses are simple, but tricky. They are simple insofar as they are composed of just a string of nucleic acid - DNA or RNA - and an envelope that surrounds them. But they are tricky in how they infect us, how they evade our immune system and how they mutate and spread.
- Genomics provides us the tools to read those nucleic acids, to get the viral blueprint, to understand the basic building blocks of the virus.
- That information can help inform the development of vaccines and other therapeutics and is invaluable in helping us track and trace the spread of the virus within Canada and around the world.
- And genomics can also help us understand the wide variation in responses among those who get sick and explore the genetic factors that may be involved.
- Canadian researchers have been engaged on COVID-19 research from the earliest days of the pandemic. For instance, researchers at Sunnybrook Hospital and McMaster University were among the first in the world to isolate and then sequence the genome of the virus.

- Other related activities were happening in pockets across the country.
- So Genome Canada pulled together the Canadian COVID Genomics Network—what we call CanCOGeN—a grassroots effort led by Genome Canada and the Centres, but driven by Canadian scientists, government public health labs, and genomics institutions. Dedicated to mounting a coordinated, connected national genomics response to COVID-19.
- **On April 23, CanCOGeN was allocated \$40 million in federal support to achieve several key objectives:**
 - Sequence up to 150,000 viral genomes and 10,000 genomes from patients;
 - Coordinate data collection and sharing across provinces;
 - Pool results for analysis, share those results with public health authorities and with partners in the UK, US, and in global open source databases.
- CanCOGeN will contribute to better public health policy; inform drug development; enable studies of future novel viruses; and will ensure **Canada has a sustainable national genomics infrastructure to combat both the current pandemic and the next one.**



Canada's future recovery

- Already looking ahead, Canada's genomics enterprise will be partners in Canada's resilient recovery.
- We are ready to deploy "made-in-Canada" solutions through science and innovation to address Canadian issues unique to our geography and our population.
- Canada is a world leader in large scale bio-data production and analysis, gene editing, synthetic biology, novel diagnostics, and more. And Genome Canada supports diverse projects like greener automobile manufacturing, improving feed for fish, poultry and swine, bioremediation of oil spills, and personalized diagnostic tools for lung transplants or kids with rare diseases.
- We are supporting the transformation of Canadian sectors and the demand is growing for our programming across industries, helping drive business investment in innovation in Canada.
- Canada has a major opportunity as it emerges from this economic crisis, to help rebuild Canadian companies so they will thrive in the 21st century economy.
- A new report by McKinsey predicts that 60% of physical inputs to the future global economy could be produced from biological



sources, signaling a bio revolution that could result in a direct economic impact of \$4 trillion/year over the next 10-20 years.

Conclusion

- Genome Canada was able to mobilize so quickly in this crisis because Canada has invested wisely in genomics science and technologies.
- It's impossible to predict where today's research will be needed in the future.
- But it's clear that today's investments in research and researchers are essential for addressing tomorrow's challenges. Our rapid response was 20 years in the making.
- As Canada rebuilds, we at Genome Canada are working to address the challenges - and seize the opportunities - of the coming decades.
- Thank you for the invitation to be here today.
- We will be happy to answer any of the members' questions.